



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/718,312	11/22/2000	Walter F. Rausch	1437	3505

21396 7590 11/30/2004
Sprint
6391 SPRINT PARKWAY
KSOPHT0101-Z2100
OVERLAND PARK, KS 66251-2100

EXAMINER

NGUYEN, DUC M

ART UNIT PAPER NUMBER

2685

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/718,312

Applicant(s)

RAUSCH ET AL.

Examiner

Duc M. Nguyen

Art Unit

2685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/12/2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-62 and 64-68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-62 and 64-68 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This action is in response to applicant's response filed on 10/12/04. Since the finality of the Office Action mailed on 8/10/04 is improper, the finality of the Office Action mailed on 8/10/04 is hereby withdrawn. Claims 1-6, 8-62, 64-68 are now pending in the present application. **This action is made final.**

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims **1, 8, 11, 14, 26-27, 30, 35, 41-42, 45, 52, 55, 57, 64, 67** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Schwartz et al** (US Pat No. **5,930,682**).

Regarding claims **1, 8, 14, 35, 45, 57, 67**, **Schwartz** discloses a wireless communication system comprising an antenna located at a rooftop of a building (see **Fig. 2 and col. 5, lines 1-3**), which receives and converts a communication signal to a stable lower frequency using the stable timing signal (see **col. 5, lines 26-45 and col. 6, lines 37-40**), converting the stable lower frequency signal to an optical signal for transmitting over a fiber-optic cable (see fiber-optic cable in **col. 4, lines 18-23**, wherein it is clear that when a fiber-optic cable is used, an optical conversion would inherently be utilized before transmitting the stable lower frequency signal to the fiber optical

Art Unit: 2685

cable). Here, although **Schwartz** is silent on a tower, it is noted that the use of such tower on the roof-top of a building is well known in the art, and since **Schwartz** discloses an in-building distribution system for wireless communication systems supporting cellular communications, video, satellite TV, high speed LAN (see col. 2, lines 33-39), it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify **Schwartz** for mounting the antenna or the central subsystem **22** on a tower of the building as claimed, for utilizing the height of the tower to reduce the blockage of signals caused by the building itself or by surrounding tall objects, thereby improving signal reception quality.

Regarding claims **11, 26-27, 53**, the claims are rejected for the same reason as set forth in claim 1 above. In addition, by mounting the central subsystem **22** on the tower of the building for reducing power loss in the cable with low frequency signals, **Schwartz** as modified would disclose the stable timing signal is generated from the upper portion of the tower as claimed.

Regarding claims **30, 41-42, 55, 64**, the claims are rejected for the same reason as set forth in claim 1 above. In addition, **Schwartz** discloses the central high frequency signal comprises MMDS communication signals as claimed (see col. 2, lines 33-39).

3. Claims **6, 43, 50-51, 61, 65, 68** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Schwartz** in view of **Walsh** (US Pat No. **6,308,077**).

Regarding claims **6, 43, 50-51, 61, 65, 68**, the claims are rejected for the same reason as set forth in claim 1 above. Although **Schwartz** fails to disclose a GPS

receiver is used for generating a stable (external) timing signal, it is noted that the use of a GPS receiver for generating a stable timing signal is known in the art as disclosed by **Walsh** (see **Figs 1-2** and **col. 3, lines 45-48**). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teachings of **Walsh** to **Schwartz** for providing the oscillator stable signal derived from the GPS receiver as claimed, for reducing long-term frequency drift in the oscillator signal of the PLL synthesizer.

4. Claims **1-6, 8-62, 64-68** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Csapo et al** (US Pat No. **6411825**) in view of **Talbot** (US Pat No. **6,163,294**) and **Bickley et al** (US Pat No. **5,982,322**).

Regarding claims **1, 8, 11, 14, 35, 45, 57, 67-68**, **Csapo** discloses a wireless communication system comprising an antenna located at a communication tower (see **Fig. 9** and **col. 6, lines 28-42**), which receives and converts a communication signal to an optical signal for transmitting over a fiber optical cable (see **col. 6, lines 55-59**). However, although **Csapo** discloses a GPS receiver and a frequency synthesizer for down converting the receiving signal to a lower frequency signal (see **col. 4, lines 43-53**), **Csapo** is silent on a stabilizing system configured to generate a stable timing signal from the GPS to the synthesizer. However, **Talbot** discloses a stabilizing system configured to generate a stable timing signal to an oscillator or VCO from a GPS receiver to account for drift rates (see **Figs. 2-3** and **col. 5, line 64 - col. 6, line 9**). Here, since **Csapo** discloses a GPS receiver and a frequency synthesizer for down

Art Unit: 2685

converting the receiving signal to a lower frequency signal, and since it is well known in the art that frequency synthesizer is a VCO for generating a variety of predetermined frequencies derived from a stable master oscillator which is in turn calibrated by accurate timing or frequency signals from a GPS receiver as disclosed by **Bickley** (see **col. 8, lines 1-19**), and since **Talbot** discloses a stabilizing system configured to generate a stable timing signal to an oscillator or VCO from a GPS receiver to account for drift rates, and since **Talbot**, **Bickley** and **Csapo** all directed to a communication device (or a transceiver) with a frequency synthesizer, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teachings of **Talbot** and **Bickley** to **Csapo** for providing the oscillator stable signal derived from the GPS receiver to the synthesizer, thereby providing a stabilizing system as claimed, for reducing long-term frequency drift in the oscillator signal of the synthesizer (see **Talbot**, Fig. 2).

Regarding claims **30, 41-42, 55, 64-65**, the claims are rejected for the same reason as set forth in claim 1 above. In addition, since using MMDS communication signals is well known in the art, and since **Csapo** discloses a base station communicating with a plurality of mobile stations utilizing a plurality of signal protocols (see col. 8, lines 48-55), it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify **Talbot**, **Bickley** and **Csapo** for providing the base station which is capable of communicating MMDS signals to fixed facilities (i.e., nearby base stations or indoor wireless devices) as well, for expanding enhanced services in order to fulfill customer needs (i.e., video and high-speed internet access).

Regarding claims **2-6, 8-10, 12-13, 17-18, 22, 24-25, 29, 31, 36-39, 43, 48-51, 56, 58-62**, the claimed are interpreted and rejected for the same reason as set forth in claims **1, 30** above, wherein it is clear that **Csapo** as modified would disclose the stabilizing system comprising a stabilized local oscillator as claimed (see **Talbot**, Fig. 3), and the converting system would also comprise a block converter as claimed (see **Csapo**, col. 4, lines 43-53 regarding frequency conversion from (stable) low frequency to (stable) high frequency and vice versa).

Regarding claims **15-16, 19-21, 23, 32, 40, 44, 46-47, 66**, the claims are rejected for the same reason as set forth in claims **1, 30** above. In addition, since such features (i.e, amplifier, transformer, filter or frequency range) as recited in the claims are well known in the art as components of a transceiver, it would have been obvious to one skill in the art at the time the invention was made to further modify **Csapo, Talbot** and **Bickley** to incorporate such features into the system, for providing operation power supply, improving signal quality and system performance of the communication system.

Regarding claims **26, 52**, the claims are rejected for the same reason as set forth in claim **1** above. In addition, since **Csapo** discloses transceivers, **Csapo** would disclose the fiber optic transmitter and the fiber optic receiver as claimed (see **Csapo**, Fig. 9 and col. 6, lines 55-59).

Regarding claims **28, 54**, the claims are rejected for the same reason as set forth in claim **1** above. In addition, since the GPS receiver of the PMU is located at a base of a tower, it is clear that **Csapo** as modified would disclose the GPS signal or stable

timing signal is transmitted at a base of a tower as claimed (see **Csapo**, Fig. 9 and col. 8, lines 56-59).

Regarding claims **27, 53**, the claims are rejected for the same reason as set forth in claim 28 above. In addition, although **Csapo** would disclose the GPS signal or stable timing signal is transmitted at the PMU is located at the base of a tower, it is noted that GPS signals are subjected to signal blockings caused by high or tall buildings.

Therefore, it would have been obvious to one skill in the art at the time the invention was made to modify **Csapo, Talbot** and **Bickley** to either locate the PMU or placing the GPS receiver at a particular position (i.e, the top) of the tower that would reduce the blockage of GPS satellite signals caused by tall buildings, thereby generating the stable timing signal at the upper portion of the tower as claimed.

Regarding claims **33-34**, the claims are rejected for the same reason as set forth in claim 1 above. In addition, since the use of redundant components in a communication system is well known in the art for backup failure components, it would have been obvious to one skill in the art at the time the invention was made to modify **Csapo, Talbot** and **Bickley** to comprise such redundant components as recited in the claims, for providing a back up system to minimize disruptions of the communication system.

Response to Arguments

5. Applicant's arguments filed 10/12/04 have been fully considered but they are not persuasive.

Regarding the finality of the Office Action mailed on 8/10/04, Applicant's argument is rendered moot.

As to applicant's argument regarding Schwartz's reference (US 5,930,682), the examiner's responses follow,

a- optical conversion feature : although **Schwartz** fails to teach an optical conversion, it is noted that since **Schwartz** mentions that the signal can be transmitted over a fiber-optic cable (see **col. 4, lines 18-23**), it is clear that when a fiber-optic cable is used, an optical conversion would **inherently** be utilized before transmitting the stable lower frequency signal to the fiber optical cable. Therefore, the claimed limitation is made obvious by **Schwartz** for providing an optical conversion as claimed, in order to transmit the communication signal over a fiber-optic cable.

b- stable timing signal and timing source : the oscillator 92 which generates a high-stability signal for oscillator 82 to generate a stabilized oscillator signal would read on the "timing source" and the "high-stability signal" would read on the "stable timing signal" as claimed (see **col. 6, lines 37-40**), noting that the frequency signal or the timing signal is essentially the same (i.e, see US 6,163,294 to **Talbot**, Fig. 3, col. 5, lines 64-67 regarding the **10 MHz** timing signal **75**).

c- upper portion of the tower : although **Schwartz** fails to teach a tower, it is noted that the use of such a tower on the roof-top of a building is well known in the art, and since **Schwartz** teaches in-building distribution systems wherein the central signal is within frequency bands used for cellular phone, satellite television, video or high bit-rate LAN (see **col. 1, lines 19-38 and col. 2, lines 33-39**), it would have been obvious

to one of ordinary skill in the art at the time the invention was made to modify **Schwartz** for mounting the antenna or the central subsystem **22** on a tower of the building, for utilizing the height of the tower to reduce the blockage of signals caused by the building itself or by surrounding tall objects, thereby improving signal reception quality. By modifying Schwartz as mentioned above (section a & c), this would result in the optical system converting system located at the upper portion of the tower as claimed.

d- MMDS signal : since MMDS signal is just a high-frequency signal (1.7-2.7 GHz) that provides a platform for providing services such as broadband data, voice, video and high-speed internet access (see specification page 6, lines 12-19), it is clear that the system in Schwartz would comprise and support such MMDS signals as well (see **col. 2, lines 33-39**).

e- GPS : The applicant alleges that the examiner use Applicant's teaching of using a GPS timing signal to stabilize a local LO signal that has less **drift** as a reason to combine references. However, it is noted that the teaching of using a GPS timing signal to stabilize a local LO signal that has less drift is already taught by reference themselves (see US 6,308,077 to Walsh, col. 3, lines 30-47 and US 6,163,294 to Talbot, Fig. 2, col. 5, line 64 – col. 6, line 9), which are disclosed **before** the filing date of the claimed invention.

d- As to applicant's regarding the combination of **Csapo, Bickley and Talbot's** references, the examiner maintains his rejection on the ground that since **Talbot, Bickley and Csapo** are **all** directed to a communication device (or a transceiver) comprising a frequency synthesizer and a GPS receiver, it would have been obvious to

Art Unit: 2685

one of ordinary skill in the art at the time the invention was made to provide the above teachings of **Talbot** and **Bickley** to **Csapo** for providing the oscillator stable signal derived from the GPS receiver to the synthesizer, thereby providing a stabilizing system as claimed, for reducing long-term frequency drift in the oscillator signal of the synthesizer (see **Talbot**, Fig. 2). Since it is not clear what reasoning or explanation is expected by the Applicant, the details of the response from the previous action is repeated.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves **or** in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, since there is some teaching, suggestion, or motivation to do so found in the references themselves, for providing stabilized oscillator signal derived from the GPS receiver (see **Bickley**, col. 8, lines 1-19 and **Talbot**, Figs. 2-3 and col. 5, line 64 - col. 6, line 9), and since **Csapo**, **Talbot** and **Bickley** all disclose a communication device (or transceiver) comprising a frequency synthesizer and a GPS receiver, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teachings of **Talbot** and **Bickley** to **Csapo** for providing the oscillator stable signal derived from the GPS receiver to the synthesizer, thereby providing a stabilizing system

as claimed, for reducing long-term frequency drift in the oscillator signal of the synthesizer (Talbot's motivation, see Fig. 2).

Here, for a rejection under 35 USC 103, Applicant must consider the combination of the references as a whole. In this case, the teachings of Talbot and Bickley are directed to a frequency synthesizer with a stable oscillator signal derived from a GPS receiver, not on frequency conversion nor tower, satellite, hand-held, optical cable as allegedly argued by the Applicant. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Here, the motivation for using the GPS timing signal to reduce frequency drift in the oscillator signal is clearly illustrated in Fig. 2 of the Talbot's reference.

As to Applicant's argument regarding the location of the GPS at the upper portion of the tower, it is noted that the features upon which applicant relies (i.e., the GPS or stable timing signals are not required to be transmitted from the bottom to the upper portion of the tower to minimize distortion, delay or signal loss as argued by the Applicant on page 19) are not recited in the rejected claim(s). Although the claims are

Art Unit: 2685

interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Here, the claims just merely recite the location of the GPS or stable timing signals with respect to the tower position. In addition, in the knowledge generally available to one of ordinary skill in the art of satellite, it would have been obvious to one skill in the art at the time the invention was made to modify **Csapo**, **Talbot** and **Bickley** to either locate the PMU or placing the GPS receiver at a particular position (i.e, the top) of the tower that would reduce the blockage of GPS satellite signals caused by high or tall buildings.

As to Applicant's argument regarding multipoint multichannel distribution service based communication signals, it is noted that since **Csapo** discloses a base station communicating with a plurality of mobile stations utilizing a plurality of signal protocols (see col. 8, lines 48-55), and since using MMDS communication signals is well known in the art, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify **Talbot**, **Bickley** and **Csapo** for providing the base station which is capable of communicating MMDS signals to fixed facilities (i.e, nearby base stations or indoor wireless devices) as well, for expanding enhanced services in order to fulfill customer needs (i.e, provide TV, video or high speed LAN access). Also note that the rejection of claim 41 is clearly addressed on page 5, not no specific rejection was provided as alleged by the Applicant.

For foregoing reasons, the examiner believes that the pending claims are not allowable.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. **Any response to this final action should be mailed to:**

Box A.F.

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for formal communications intended for entry)

(for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, Sixth Floor (Receptionist).

Any inquiry concerning this communication or communications from the examiner should be directed to Duc M. Nguyen whose telephone number is (703) 306-4531,

Application/Control Number: 09/718,312

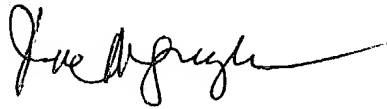
Page 14

Art Unit: 2685

Monday-Thursday (9:00 AM - 5:00 PM). Or to Edward Urban (Supervisor) whose telephone number is (703) 305-4385.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

Duc M. Nguyen

A handwritten signature in black ink, appearing to read "Duc M. Nguyen", with a long horizontal flourish extending to the right.

July 27, 2004